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Information Systems Strategic Plan of the Batangas City Government (2014 – 2016)

Investment Enabling Environment (INVEST) Project

Submitted to:

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Information Systems Strategic Plan

Batangas City Government 2013 - 2015

Batangas City Government
INFORMATION SYSTEMS STRATEGIC PLAN
For Year 2013 – 2015

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EXECUTIVE SUMMARY

In 2012, the City of Batangas took its milestone to finally establish its own track towards Information Technology (IT) super-highway to boost its potentials as the "Industrial Port City of CALABARZON".

Batangas City, with its compelling profile and current Information and Communications Technology (ICT) situation as a local government unit, formed the basis for establishing the Strategic Objectives for ICT in order to come up with its three-year Development and Investment Program, the IT roadmap to guide the city in meeting its goals and business needs.

The Batangas City Government's Information Systems Strategic Plan (ISSP) examined the various approaches that each department use to address their business challenges, and those strategies that seemed common "city-wide" were abridged as a set of Information Systems (IS) Strategy and ICT Solution. It does, however, signal fundamental change in the way in which ICT investment decisions are made and implemented.

To understand how Information Technology (IT) can best support the services and business needs of the city, it is essential to realize the business context in which the city operates. This includes identifying the business and technology trends and challenges it currently faces, which becomes the business drivers for the city.

With the stance of the ICT Solution and its prudent consideration to the critical components to progressively implement new improvements, the city is expected to practice not only enterprise system security and centralized data management but also centralized ICT management under a shared-services unit, the IT Services Division.

Also, from the IS Strategy and ICT Solution, were derived the ICT Resource Requirements. This includes scheduled plans for equipment deployment and upgrades, software acquisition, consolidation of service subscriptions as well as technical training needs and capability development.

This effort shall provide the groundwork for the subsequent IT tactical analysis, and indeed, may offer a foundation for other cities strategic initiatives.

SECTION 1 – LOCAL GOVERNMENT PROFILE

Vision and Mission Statements

Vision Statement

"By 2020, a well-diversified agro-industrial ICT Center, and international gateway for investments, with tourist-friendly and safe environment and quality infrastructure, powered by a globally-competitive citizenry, and inspired by transparent, firm, and fair leadership towards sustainable development."

Mission Statement

"To improve the quality of life of the citizens through sustained efforts to attain a balanced agro-industrial development; promote a business-friendly environment; to generate more employment opportunities and adequately provide the basic infrastructure utilities, facilities and social services necessary for a robust community."

General Profile

General Information

CITY OF BATANGAS - Known as the "Industrial Port City of CALABARZON" and classified as one of the most competitive cities in the country today and the home of approximately 305,607 peace-loving, hospitable and hardworking inhabitants. It was proclaimed as a City on July 23, 1969 which became the accelerating point of trading, commercial and industrial activities in the locality. The city is presently classified as a Regional Growth Center and identified as one of the sites for the Regional Agro-Industrial Center and Special Economic Zone as mandated by the Medium Term Philippine Development Plan and the Ecozone Act of 1995. This capital city is one of the nation's top revenue earning cities and the site of one of the biggest oil refineries in using natural gas with a combined capacity of 2,700MW. It is located approximately 108.00 kilometers south of Manila. The city's fine harbor was declared as an International Port and an alternative port of Manila. The city is in the land of historical place, of fresh fruits and marine resources and of great opportunities for social and economic advancement.

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Annual Resource (CY2013)

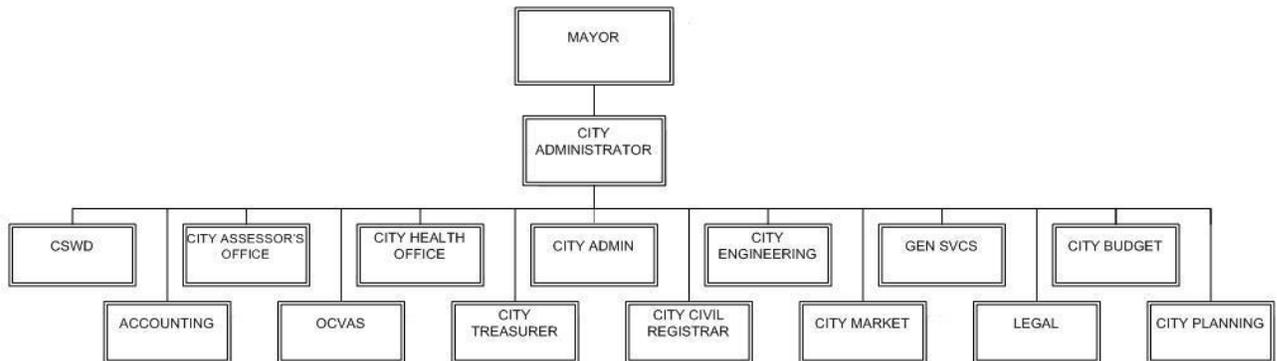
	PS	MOOE	CO	Total
Mayor	76,952,520.00	358,145,310.00	2,000,000.00	437,097,830.00
Sanggunian	32,044,132.00	16,397,600.00	702,000.00	49,143,732.00
CPDO	15,574,005.00	1,785,500.00	50,000.00	17,409,505.00
Registrar	14,283,967.00	2,895,750.00	50,000.00	17,229,717.00
GSD	52,651,217.00	23,700,000.00	50,000.00	76,401,217.00
Budget	7,887,489.00	2,245,000.00	50,000.00	10,182,489.00
Accounting	18,789,332.00	1,755,700.00	50,000.00	20,595,032.00
Treasurer	26,139,320.00	11,410,000.00	50,000.00	37,599,320.00
Assessor	20,764,922.00	7,415,700.00	50,000.00	28,230,622.00
Legal	6,032,856.00	741,000.00	50,000.00	6,823,856.00
Prosecutor	4,321,604.00	-0-	-0-	4,321,604.00
Health	74,965,972.00	55,335,600.00	50,000.00	130,351,572.00
CSWD	22,453,680.00	10,819,900.00	50,000.00	33,323,580.00
OCVAS	26,396,588.00	16,230,000.00	5,550,000.00	48,176,588.00
CEO	47,363,830.00	17,046,000.00	50,000.00	64,459,830.00
Market	28,236,306.00	10,463,700.00	50,000.00	38,750,006.00
Special Purpose Lump Sum	-0-	127,953,500.00	106,000,000.00	233,953,500.00
Appropriation				
TOTAL	474,857,740.00	664,340,260.00	114,852,000.00	1,254,050,000.00

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Personnel Structure

City Administrator	Mr. Felipe M. Baroja
City Legal Officer	Atty. Teodulfo A. Deguito
City Secretary (Sangguniang Panlungsod)	Atty. Oliva D. Telegatos
City Treasurer	Mrs. Maria Teresa T. Geron
City Assessor	Ms. Guadalupe Judy A. Tumambing
City Accountant	Mrs. Aster P. Marasigan (OIC)
City Budget Officer	Mrs. Elizabeth Q. Delos Reyes
City Planning and Dev't. Coordinator	Engr. Januario B. Godoy
City Engineer	Engr. Adela B. Hernandez
City Health Officer	Dr. Rosanna Carmelita A. Barrion
City Civil Registrar	Mrs. Josephine P. Maranan
City Social Welfare & Dev't. Officer	Mrs. Mila M. Española
City General Services Officer	Ms. Jocelyn E. Cantre
City Market Administrator	Ms. Carmela H. Atienza
Office of the City Vet. & Agri. Services	Dr. Estrelita G. Lacsamana (OIC)
Secretary to the Mayor	Atty. Victor Reginald A. Dimacuha
MTCC Judge Branch I	Hon. Eleuterio L. Bathan
MTCC Judge Branch II	Hon. Eleuterio L. Bathan
City Prosecutor	Fiscal Evelyn A. Panopio-Jovellanos (OIC)
State Auditor IV	Ms. Lucila M. Rosales
City Local Gov't. Operation Officer (DILG)	Mrs. Victoria Amor M. San Gabriel
Schools Division Superintendent	Dr. Rommel C. Bautista (OIC)
Chief of Police	P/Supt. Nicolas D. Torre III (OIC)
City Fire Marshal	F/Supt. Rommel T. Tradio
City Warden	J/Cinsp. Lorenzo V. Reyes (OIC)
City Wardress	SJ04 Irene R. Kapirig (OIC)
COMELEC Election Officer	Atty. Grollen Mar M. Liwag

Departments/Offices



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The LGU and its Environment

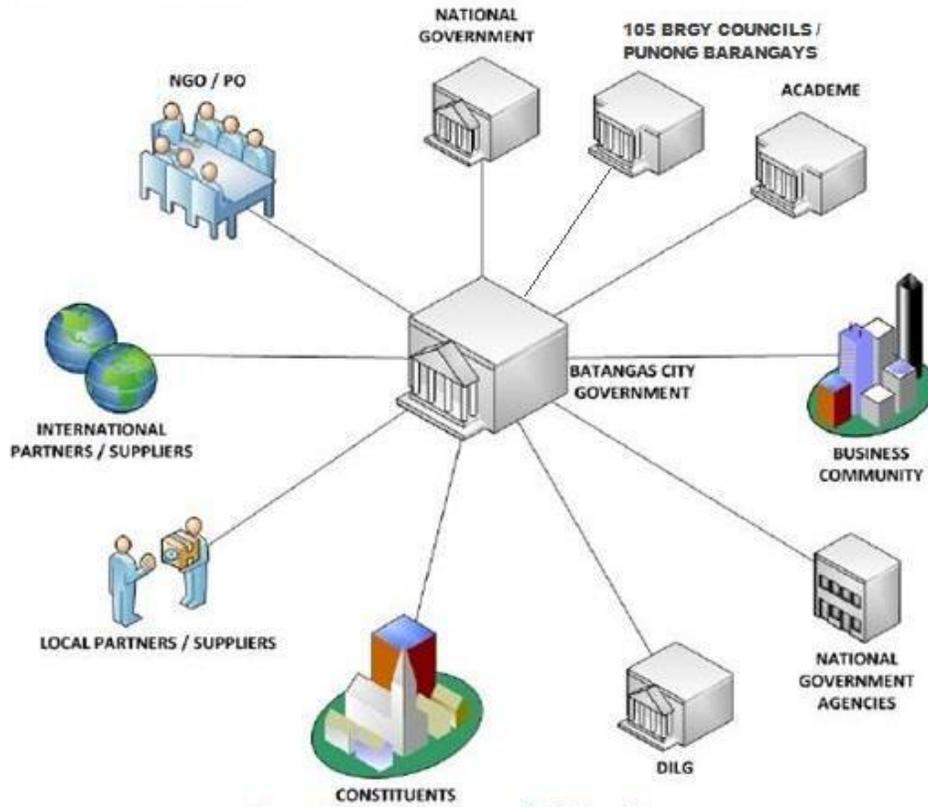


Figure 1 - LGU Interactions and Relationships

Current LGU ICT Situation

Overview

Progressive growth necessitates the need for the Batangas City local government to establish clear lines of communication between the different institutions, agencies, business entities (local, regional, and national), people's organization and NGO's, and its own constituency. The rate of socio-economic growth will soon surpass the city's current communication and relational infrastructures that allow it to efficiently communicate with the various stakeholders and partners that interact and transact with the City government.

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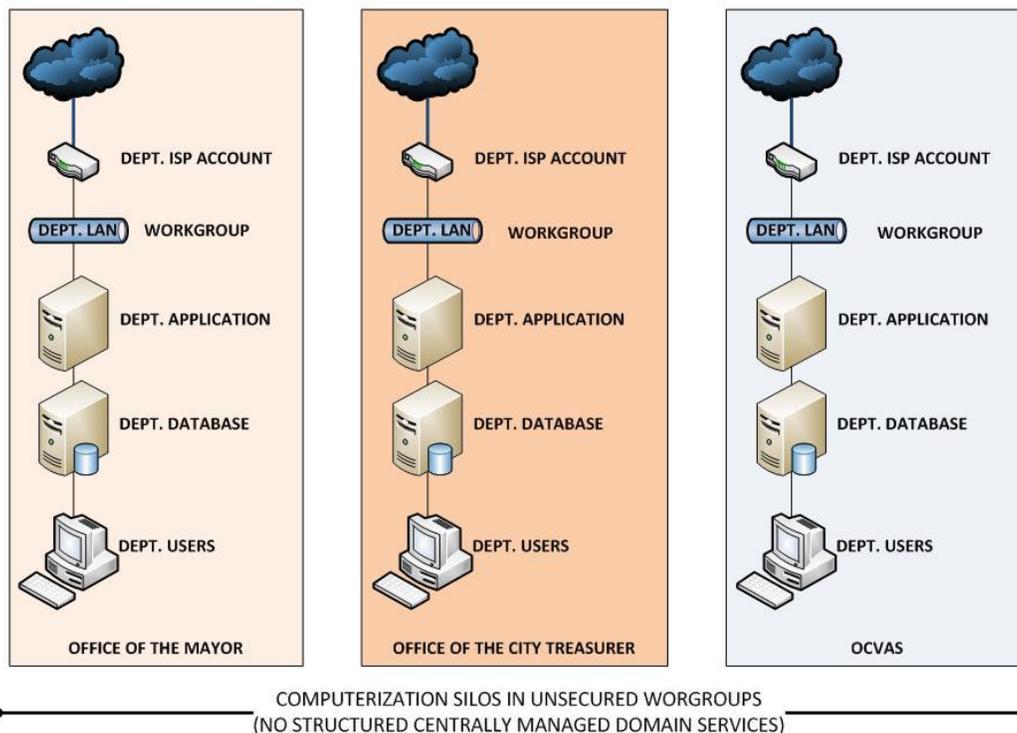
Cognizant of this reality, the City Government, under the leadership of its local chief executive, Mayor Vilma A. Dimacuja, has resolved to pursue an initiative to boost its communication and transactional systems giving the City enhanced management and administration capabilities through the use of information and communication technology (ICT) systems.

This *Information Systems Strategic Plan* or ISSP encapsulates the high-level structure as well as the various solution components that comprise the City government’s initiative to boost its communications and transactional capabilities covering the period from January 2013 through December 2016.

Network and Connectivity Assessment

The technology environment of the Batangas City Government essentially consists of independent and sub-optimal *workgroups* characteristic of a small office – home office (SOHO) computing environment and not ideal for any business or governmental environment using different network topologies (star topology, ring topology, star-ring topology hybrid).

CURRENT COMPUTING ENVIRONMENT OF THE BATANGAS CITY GOVERNMENT



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Workgroups use default operating system (OS) settings with minimal security settings, and default network protocols to allow business unit specific applications to access database servers, share files and printers as well as access the internet via wired and wireless protocols (refer to *Table 1* below).

	CITY MAYOR'S OFFICE	CITY ASSESSOR'S OFFICE	CITY HEALTH OFFICE	CITY PLANNING AND DEV	GENERAL SERVICES DEPT.	CITY ENGINEER'S OFFICE	CITY ADMINISTRATOR	CITY BUDGET OFFICE	OCVAS	CITY TREASURER'S OFFICE	CITY ACCOUNTING	CITY MARKET ADMINISTRATOR	CITY LEGAL OFFICE	CITY CIVIL REGISTRAR'S OFFICE	CS/0/D	SANGGUNIANG PANLUNGSOD	TOTAL
IT INFRASTRUCTURE:																	
Centralized Data Center:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Dedicated Server Space/Room:	1	1	0	0	0	0	0	0	0	1	1	0	0	0	1	0	5
Network Cabinets:	1	1	0	1	1	0	0	0	1	1	1	0	0	0	0	0	7
In Use PC's:	62	24	22	14	20	23	0	15	39	46	57	6	3	18	5	25	379
Avg. Age of PC's:	4	5	3	3	3	7	0	4	4	3	4	2	2	4	7	2	4
In Use Laptops:	4	1	8	2	3	1	0	0	2	2	1	0	1	2	1	4	32
Avg. Age of Laptops:	3	5	2	2	3	3	0	0	3	2	1	0	1	3	2	2	2
In Use Server Machines (Utilized):	4	2	0	0	1	0	0	1	0	1	3	1	0	1	1	15	31
Avg. Age of Server Machines:	7	7	0	0	1	0	0	1	0	1	5	1	0	3	7	0	2
In Use Mid-Range Servers:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
In Use Main-Frame Servers:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Network (LAN) Speed (Mbps):	100	100	0	100	100	0	100	100	100	100	100	100	100	100	100	100	1,400
In Use Network Routers:	0	0	0	0	0	0	0	0	1	0	3	1	0	0	1	0	6
In Use Network Switches/Hubs:	3	3	0	0	0	0	0	0	2	12	9	1	0	2	1	4	37
In Use Firewall Appliances:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
In Use Wireless Routers:	3	0	0	1	1	0	0	0	2	1	0	1	1	1	1	2	14
In Use Active Wired Network Nodes:	3	29	0	14	0	0	0	0	9	1	0	7	0	2	0	0	65
In Use Active Wireless Network Connections:	15	0	1	1	0	0	0	0	5	46	0	0	1	1	1	59	130
In Use Internet Providers:	3	1	1	2	1	2	0	0	1	1	1	1	1	1	1	2	19
Internet Bandwidth (Mbps):	4	4	4	4	4	1	0	4	4	4	4	4	1	2	4	4	52
In Use VLAN's:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
In Use SAN's:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
In Use WAN Connections:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
In Use VPN Connections:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Departmental URL(website):	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-

Table 1 - BCG Network Infrastructure

A fiber distributed data interface (FDDI) via a fiber-optic connection (FOC) connects the Office of the Mayor with the Assessor's Office but this infrastructure is under-utilized given that there are no applications that currently take advantage of this high speed connectivity. Only the City Treasurer's Office which is connected to the high speed backbone via the Office of the Mayor (over Ethernet) uses this network connection to connect to the systems of the City Assessor's Office.

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Due to the sub-optimal design and condition of the networks of the various BCG department workgroups, its internal operating network bandwidth is choked at 3.5 kbps (kilobits per second). The mixed use of early and late model network hub/switch/router units despite the prevalent use of Gigabit Ethernet devices and network appliances exacerbates poor network performance. Most departments use SOHO-type network hub/switches and wireless routers to inter-connect its computing devices and peripherals.

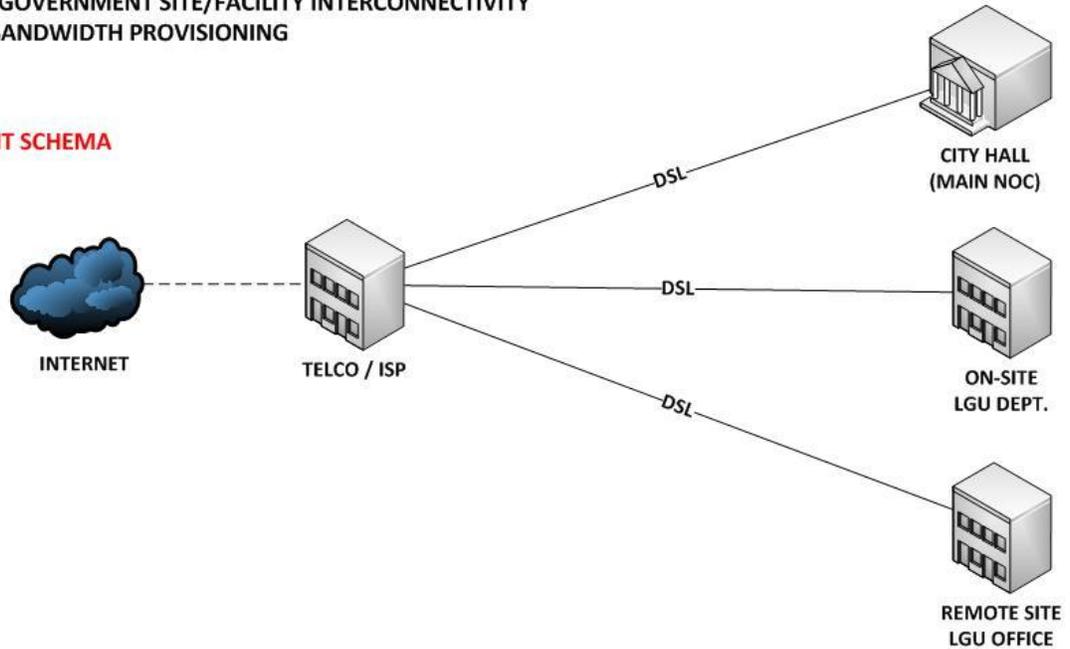
BCG departments also connect to the internet via individual ISP providers—accounting for the high cost of internet connectivity with poor quality of service (QoS) standards, frequent downtimes, and intermittent committed information rates (CIR) without a hardware-based firewall¹ appliance in place to secure (encrypt) transmission packets going in and out of the BCG network. Since ISP-Telco providers view each account as independent, the BCG is not able to avail of service level commitments (SLCs) that are typically extended to enterprise customers of ISPs.

¹ The hardware-based firewall (FORTINET) in the server room of the CMO is powered but is not connected to a router, switch, or patch panel. Only Windows firewall services are enabled in all computing devices and server machines.

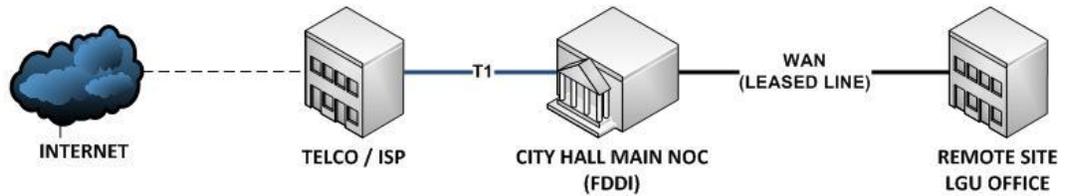
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**BATANGAS CITY GOVERNMENT SITE/FACILITY INTERCONNECTIVITY
AND INTERNET BANDWIDTH PROVISIONING**

CURRENT SCHEMA



FUTURE SCHEMA



Computing Devices (Desktops and Laptops) and Peripherals Assessment

A majority of BCG desktop units are independently assembled (cloned) units that use parts intended only for personal use (not suitable for business operating environments). The average age of BCG departmental computers is between four (4) to seven (7) years old—depending on the department’s perceived computing needs. Older non-functional desktop units are often stored for parts or are sold via BCG auctions managed by the General Services Department (GSD). All laptops in use are original equipment manufacturer or OEM-type machines which are between five (5) to two (2) years old.

There are no controls or enforced policies that govern the use of BCG-owned computer equipment and peripherals. Based on a non-pervasive assessment particularly of units with direct access to the internet, several units have been found with installed games, social networking and internet-chat applications, personal videos, photos, and even

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unlicensed or pirated software. Furthermore, the units assessed did not have properly partitioned hard disk drives (HDD)².

Local and Enterprise Systems Security Assessment

The BCG computing environment is generally classified as high- risk as it is exposed to internal and external security breaches or intrusions and system attacks (hackers, malware, viruses, Trojan horses, and worms) with no hardware or software based security systems in place to prevent unauthorized network or system breaches.

According to a US 2012 Data Breaches Report:³

- 98% of breaches originated from external perpetrators, 4% from internal, less than 1% perpetrated by internal upper management, executives and/or business partners, and 58% were perpetrated by activists or individuals tied to special interest (political/financial) groups currently working for the breached organization;
- 81% of breaches utilized some form of hacking, 61% incorporated malware, 10% involved physical attacks, 7% employed social tactics, and 5% resulted from privilege misuse;
- The commonalities observed between the different types and sources of attacks showed that 79% of victims were targets of opportunity, 96% were not highly difficult (due to weak passwords and lack of security hygiene), 94% of all data compromised involved servers, 85% took 2 weeks or more to discover, 92% were discovered by a third party, 97% were avoidable through simple or intermediate controls, and 96% failed to comply with data security standards (PCI DSS);

Computers employ very weak security settings using passwords that are not *strong password* compliant and employ very basic security protocols to secure computers connected to local workgroups. Users are provided “administrator” privileges by default in their respective workstations. This enables users to freely access operating system level files and folders, install pirated software programs, download video, audio or music, freely transfer non-work related files and documents to external storage devices, and lockout all other users from accessing their designated computer.

²Logical HDD partitioning is an essential method of separating non-system files from system files and programs. Should a corruption of the operating system or virus infection occur, logically partitioned drives prevent working file loss in the event of system file corruption or virus infection and vice versa.

³Verizon 2012 Data Breach Investigations Report

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Instead of using secure file exchange methods between authorized users, for example, the use of external USB port devices renders data management and security protocols useless and adds to the ability of users to transfer sensitive files (along with viruses and malware programs) to micro storage devices at will.

Although most computers have some type anti-virus software installed, only those with internet access had updated virus definition files. The fact that USB external device access is allowed increases the risk of viruses penetrating and infecting files and operating systems of all computers that access the infected unit or receive transferred files from an infected unit.

Every computer connected to any of the existing departmental networks via a wired or even wireless connection could view other computers within the workgroup as well as access file folders that were shared by users without requiring a password to access or modify data stored in file folders or database servers accessible via that departmental workgroup. Wireless connections available in departments that have wireless capability however, at least require a password (although generally weak) for computers to access the departmental network.

Since each department supports its own workgroup network as well as manages its own application and data environment, production databases are generally configured using basic settings with little modifications to default database port settings.

Application Layer

Departmental applications, both stand-alone or client/server, are implemented as fragmented systems even within their respective departments—unable to exchange data even at the database layer—constantly requiring direct human intervention to extract and load data from source to target systems.

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SOFTWARE ENVIRONMENT																		
Centralized Machine Authentication and Network Administration (Domain and Security):		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Centralized Systems Management Server:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unified Communication and Messaging Systems:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Centralized Database Management Systems:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Centralized Collaboration Platform:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stand-Alone Systems:		5	0	0	2	0	0	0	0	0	1	1	0	0	1	1	0	11
Client-Server Systems:		0	1	0	1	2	0	0	1	0	1	1	0	0	0	0	1	11
Web-based Systems:		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Enterprise Systems:		0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2

Table 2 - BCG Software Environment

Relational Database Management Systems (RDBMS) are implemented as stand-alone database servers. Operational or production database servers do not take advantage of load balancing, or clustering for high availability failover support server features. Each server is basically used as a high end desktop machine.

Structured backup servers are also non-existent in the BCG environment. Scheduled backups of mission critical databases are manually performed and stored in external storage devices (USB)—but do not employ standard disaster recovery protocols for managing backups since most of these external USB storage devices as only a single storage device is used for all backup versions which are also stored within the same facility and are also used to store miscellaneous. In the event that the physical storage device is damaged there are no redundant backup devices that will allow BCG to perform system rollbacks. Full image backups (operating system files, applications, and data) of servers are non-existent.

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SERVER UTILIZATION																	
In Use Domain Servers:	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	4
In Use File-Print Servers:	0	0	0	0	0	0	0	13	0	3	0	1	0	2	0	0	19
In Use Application Servers:	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	4
In Use Database Servers:	1	1	0	0	1	0	0	1	0	1	1	1	0	2	0	0	9
In Use Data Warehouse Servers:	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
In Use Dedicated Web Servers:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
In Use Dedicated Email Servers:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
In Use Payment Gateway Servers:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
In Use DNS Servers:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
In Use Video Servers:	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
In Use Backup Servers:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3 - BCG Server Utilization

Application server services are configured as a *server role* but remain unused by existing departmental applications client/server or otherwise. Application servers efficiently maximize server resources (processor and memory) to increase the performance of departmental application. Most of the applications in use within BCG do not strictly comply with n-tier application design standards but are stand-alone software applications installed on the server and shared between departmental users.

The type of desktop and mobile (laptop) operating systems in use within BCG are distributed between Windows XP SP4 for older units, Windows 7 Home Premium⁴, and Windows 7 Professional for newer models and only a few Apple operating systems in use. Server machines in deployment use a mix of Windows 2000 SP4, Windows 2003, and Windows 2008 R2 server operating systems. Servers used in the different departments do not employ load balancing or distributed computing capabilities.

Email Communication and Unified Messaging

Despite the high operational expense involved in maintaining multiple networks and multiple independent DSL subscriptions, all email transactions use non-moderated and non-secure free email domains (such as yahoo.com, etc.). Free email accounts transport password data using *plain text* (even when using HTTPS protocols) which means that all

⁴ Microsoft does not allow the use of Home Premium licenses in computers that operate in a business environment. Computers running Home Premium (Vista, Windows 7) versions are also unable to join a structured network or domain.

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passwords and account names are easily visible to anyone between the user's workstation and the public free email server. Because users use internet mail accounts as the default email communication method, internet DSL service interruptions also interrupts all email communications. Internal email services must function even during interrupted internet connectivity as it is an enterprise application designed to function as a network or LAN-based service.

The strides BCG departments have taken to progressively (independently) automate its processes without the benefit of an explicit enterprise systems architecture also resulted in the creation of pockets of data standards and reducing the capability of systems within BCG to “communicate” and exchange data with each other.

Information Technology Management

IT systems implemented within each department are currently managed by departmental resources (organic or contracted) since no centralized IT department exists to service the technology needs of the local government.

Manual Operations

The City Government's operations are *predominantly* manual-supported by personal computing equipment. While LGU departments have taken the initiative to implement “systems,” most of these systems heavily depend on human intervention and serve only as repositories of data/information captured by the various LGU departmental units giving rise to integration and information harmonization problems that impede the City government's capability to maximize communications and transactional performance.

The objective for implementing department-level systems and applications was to “automate” the functions of each, but the absence of a cohesive and enterprise plan, as stated earlier, diminished each initiative from an idea to cleanly automate processes to simply becoming a computerization of manual operations (in the same way as the electric typewriter supported mechanical typing operations)—no added value nor benefit was introduced to the City government as a whole.

Strategic Objectives for ICT

The strategic objectives for the Batangas City Government for implementing the specifics encapsulated in this Information Systems Strategic Plan, covering a two-year period are as follows:

1. Systematize the administration and provisioning of IT services of the City government as a secure and centrally managed shared service;
2. Unify and standardize the architecture and management of data and information;
3. Progressively automate departmental service and transactional processes and data management using integrated enterprise software and database systems and technologies to enhance support capabilities and increase service delivery efficiencies;
4. Provide a stable platform for internal as well as external inter-agency data exchange particularly in areas affecting identification, transactional monitoring, finance, regulatory compliance, economic growth, public safety, law enforcement, and national security;

SECTION 2 – INFORMATION SYSTEMS (IS) STRATEGY

Framework for Information Systems

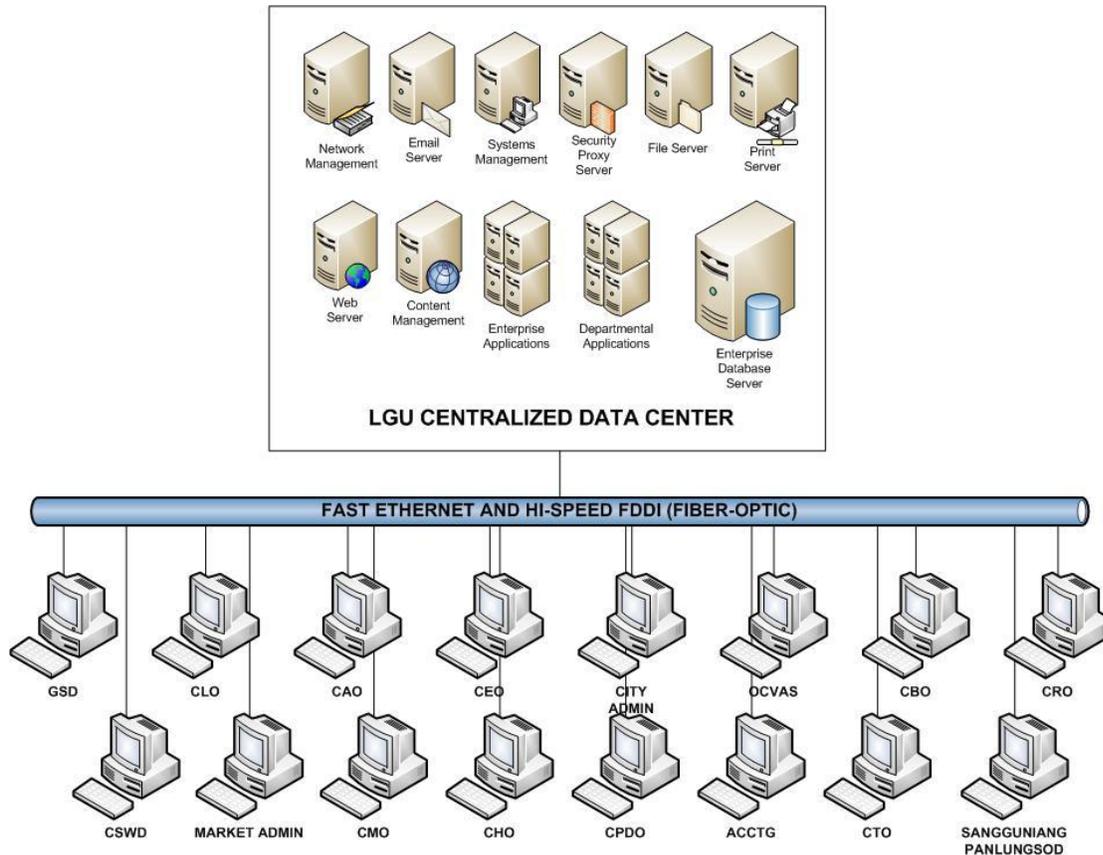


Figure 1 - Structured LGU LAN/WAN

The planned framework of the Batangas City LGU Information Systems is built on a unified and centrally managed Local Area and Wide Area Network (LAN/WAN) that interconnects all computer assets and devices of the local government using centralized user management, privileges administration, and authentication.

The conceptual design as illustrated in **Error! Reference source not found.** is designed to protect the propriety and confidentiality of LGU data and information sources without impeding the service and communication efficiencies and capabilities of the various departments in the dispensation of their chartered responsibilities.

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The LGU information systems environment will be supported by a LAN and WAN. Departments and facilities situated outside the main LGU compound (CEO, OCVAS, CLB, TCC, CCC, and Market Administration) will ultimately be connected to the main compound (local area network or LAN) via a dedicated high-speed leased line (wide area network or WAN). All server and application services (refer to

Figure 2 - Centralized Network Authentication and Security Administration

) such as *Email, Internet Access, Network Authentication, File and Print Services, Database services and Enterprise Applications*, will be centrally housed in the main compound's data center (2015) and managed by the LGU's IT department (2013).

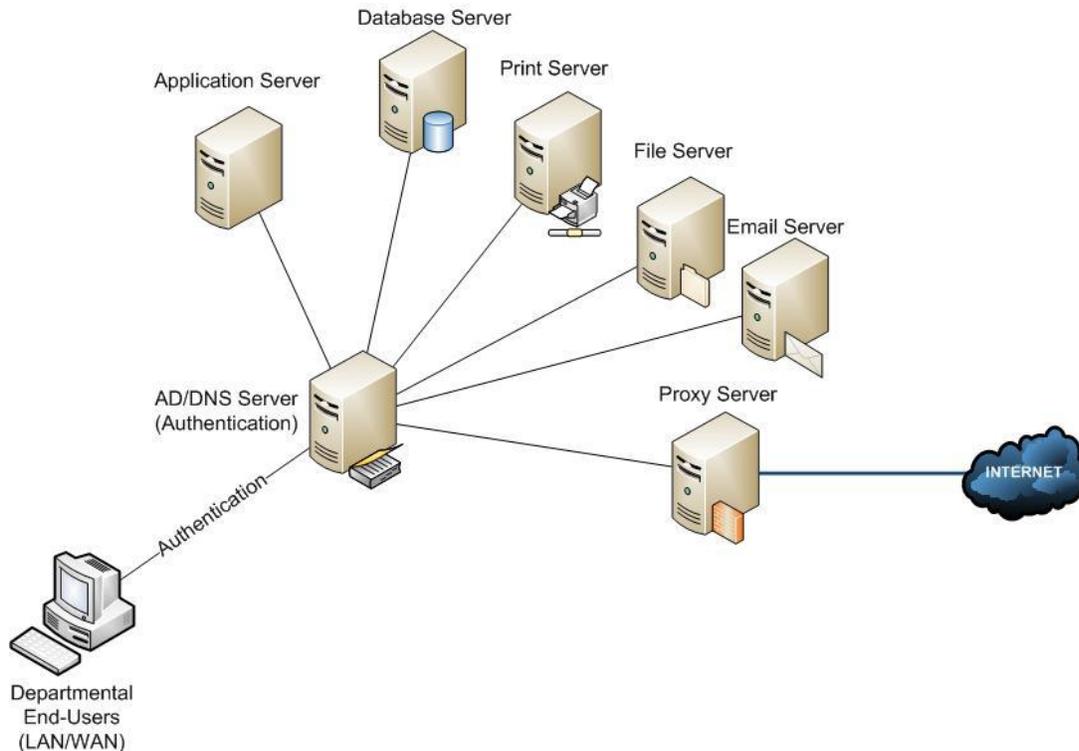


Figure 2 - Centralized Network Authentication and Security Administration

User Authentication

Network security and centralized systems administration is a core component of the Batangas City Government's two-year Information Systems program. Department end-

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users will progressively be “joined” into a single secure domain and managed via a central active directory account within the next two years⁵.

To prevent unauthorized users from accessing departmental files or sensitive personal and financial data, servers housing such information will be segregated into specific network subnets and virtual LANs. In addition to this segregation, all end-user files will be centrally stored on designated file servers. End-users will be disallowed from storing documents and files on their local hard drives—this method eliminates the need to individually back-up workstations since all work files are stored on the server which are immediately included in all back-up processes.

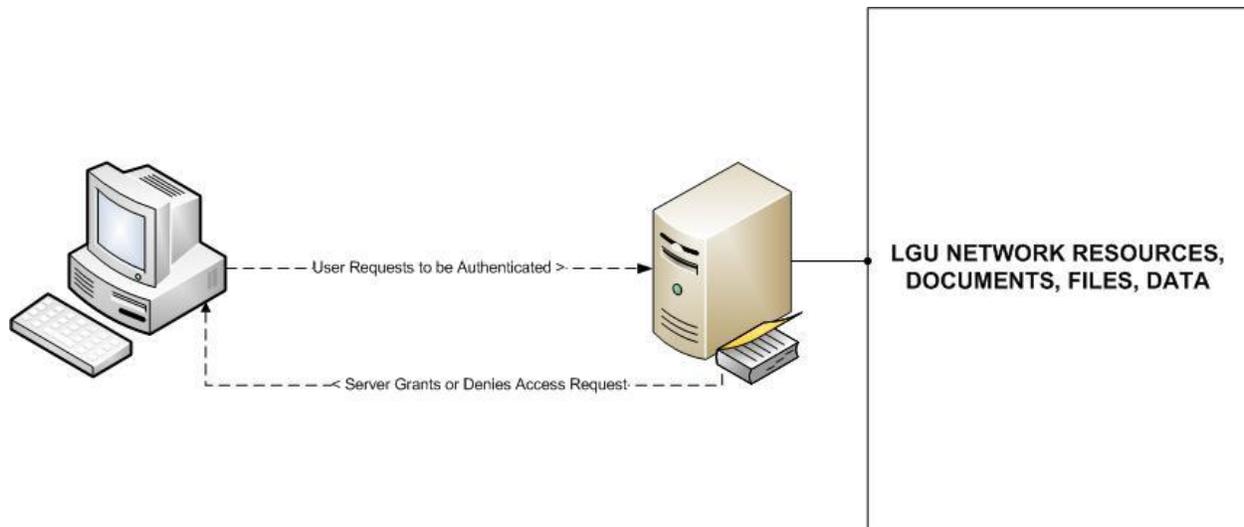


Figure 3 - The Simple Network Authentication Process

The implementation of security protocols provides the needed platform for the LGU to more effectively communicate between departments and between the various stakeholders of the City (public and private), as well as with other essential national government and law enforcement agencies that are required to share and exchange information with the LGU.

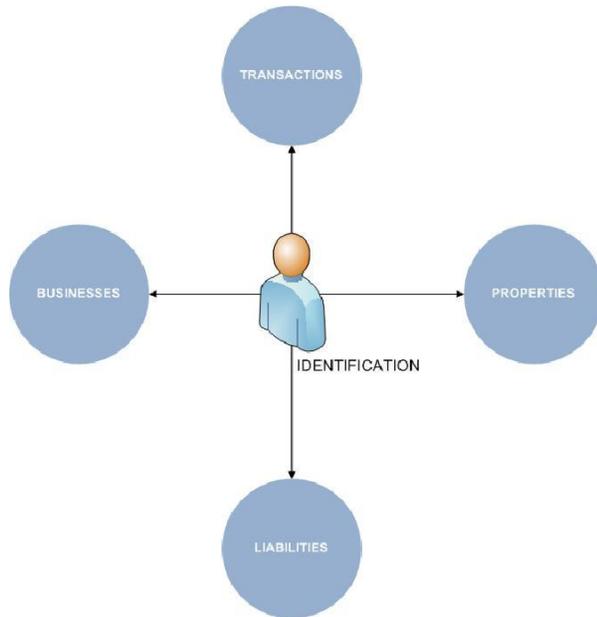
Shared Services

Shared services are those network-based applications and services that are commonly or universally used by every department such as internet access and filtering, network security management, network file storage services, email services, content management,

⁵ Due to existing applications implemented by the various LGU department that have been configured to run in unsecured environments, the migration of systems to a secure network will need to be performed in stages so as not to impact the use of existing applications in the LGUs daily operations.

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calendar services, remote network access, and internet telephony services. Shared services are centrally administered and managed by the designated IT systems/network administrator.



The Batangas LGU systems and network environment will employ Microsoft Server 2008 R2 as the standard server and network operating system. Hence, the definition, management, and administration of the Batangas LGU network will be governed using Microsoft Server 2008 as its primary systems management tool.

Department-Specific Systems

Department specific systems are those client-server or web applications that are intended for use only by department users. These department systems will employ application and database systems that are specifically configured to meet the functional

specifications of its functional owners. Moreover, these systems will remain under the functional administration of its owners. Functional administration involves the definition of business rules, and the administration of user and their access privileges and permissions. *The IT department will restrict its access privileges to enable its staff to manage the underlying technologies but will not have access to the contents of any of these systems.*

Standard Unified Data Architecture

Another critical component of the ISSP is the definition, design, and implementation of a unified data model and standard data architecture for the city government. Unified data models and standard data architectures are essential to ensuring that departments are able to securely share or exchange data with other LGU departments and essential national government agencies.

This standardization will require the definition of standard data definitions, naming conventions, the definition of standard data type, and the definition of sources and data ownership.

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The city government, in the process of developing this ISSP has come to the determination that the reason why the different LGU departments find it difficult to share data is due to the absence of a standard data model. Every system implemented within the LGU employs its own data model and are designed to operate as stand-alone server-based systems not needing to communicate or share data with other systems.

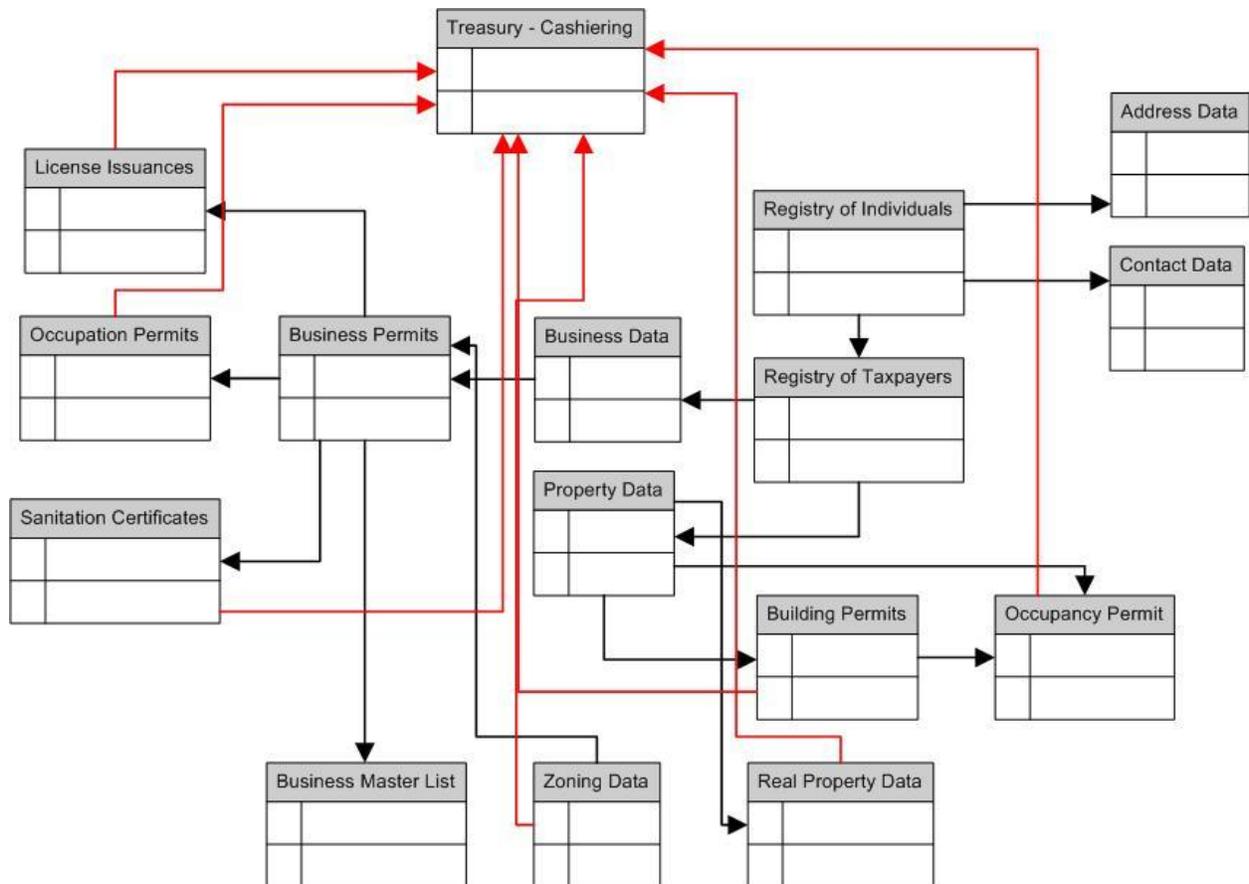


Figure 4 - High-Level View of LGU Data Relationships

The unified data model will standardize the definitions and normalize the relationships between data and database objects of internal applications of the city government beginning with the new systems that are scheduled for implementation under this ISSP as well as integrating with those from national government agencies.

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SECTION 3 – INFORMATION AND COMMUNICATIONS TECHNOLOGY SOLUTION

Progressive Implementation of New Solutions

This ISSP calls for the city government to inter-connect all LGU facilities and implement new integrated software automation systems beginning FY-2013. The three-year automation and infrastructure improvement program as defined in this ISSP will be prioritized as follows:

DEPARTMENT-UNIT	SOLUTION	2013	2014	2015
DEPARTMENTAL SYSTEMS				
CMO-BPLD	Integrated Business Requirements Management and Permit and Licensing Issuance System	✓		
CMO-BPLD	Centralized Calendaring and Compliance Monitoring	✓		
CMO-PESO	Occupation and Skills Information Management System	✓		
CMO-BPLD/TDRO	Special Permits Calendaring and Interface	✓		
	Traffic Management and Ticketing			✓
CMO-PERSONNEL	Human Resource Management System		✓	
CTO	Integrated City Treasury Operations Management	✓		
CTO-RPTS	Real Property Tax Management System		✓	
CAO	Parcel Information Tracking and Management System		✓	
CPDO-ZONING	City Zoning Information Management System		✓	
CHO	City Health Office Certificate Management and Issuance System	✓		
CEO	City Engineering Compliance Monitoring and Management System		✓	

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DEPARTMENT-UNIT	SOLUTION	2013	2014	2015
CITY BUDGET OFFICE	Budget and Encumbrance Management System			✓
CITY MARKET	Market Administration System			✓
CITY ACCOUNTING	Accounting System and Financial Reporting (eNGAS Compliant)		✓	
CMO-GSD	Procurement and Inventory Management System		✓	
	Asset Management and Tracking System		✓	
	Supply Logistics and Distribution System		✓	
	Maintenance Management System		✓	
UNIVERSAL SYSTEMS				
Website	City Government Content Management System and Website	✓		
Email Management	City Government Email System	✓		
Active Directory	Centralized Network and Security Management	✓		
Communication	IP Telephony and PBX system	✓		
DATA EXCHANGE AND INTEGRATION SYSTEM				
	DTI-PBR Integration		✓	
	BFP Integration		✓	
	SEC Integration			
	CDA Integration		✓	
	POEA Integration			
	DoLE Integration (NMRS)		✓	
	BIR Integration			
	SSS Integration			
	PhilHealth Integration			
	DOH Integration			✓
	COA Integration			✓
NETWORK INTERCONNECTIVITY AND COMMUNICATIONS CONVERGENCE				
LGU	Consolidation of all data and voice subscriptions into a single managed enterprise account;	✓		
CITY HALL COMPLEX	Inter-connect all	✓		

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DEPARTMENT-UNIT	SOLUTION	2013	2014	2015
	departments into a secure high-speed LAN network			
CITY PUBLIC MARKET	Phase 1: Inter-connect all remote department facilities into a secure high-speed WAN network.	✓		
CITY ENGINEERING OFFICE		✓		
CITY VETERINARIAN (OCVAS)		✓		
CITY DISASTER RISK REDUCTION		✓		
CITY SOCIAL WELFARE (CSWD)		✓		
CITY WAREHOUSE (GSO)		✓		
CITY COLISEUM	Phase 2: Inter-connect all remote department facilities into a secure high-speed WAN network.		✓	
CITY CONVENTION CENTER			✓	
TEACHER'S CONF. CENTER			✓	
COLEGIO NG LUNGSOD NG BATANGAS			✓	
CITY BFP OFFICE			✓	
CITY PNP OFFICE			✓	
CITY JAIL			✓	
CITY SLAUGHTERHOUSE			✓	

As stated earlier, the implementation of software automation systems for the different LGU departments under this information systems plan will be based on the development of a unified process model supported by an enterprise data model. While each department will have requirements specific to its functions, these functions share common reference data such as location information, services, fees, signatories, and resident personal information. The first area of standardization will revolve around these shared and common reference data.

It has been determined that the uniqueness or variation between departmental systems are largely based on the regulatory or legislative standards employed by departments in the dispensation of their functions (e.g. LGU Revenue Code, Fire Code, Building Code, Health Code, etc.). However, it was also found that the structure of relationships between these unique standards and a particular client could be standardized regardless of context.

For example, clients who are applying for building permits would have to provide the CEO with personal information—information which will also be required should they need to apply for a health certification, parcel assessment, zoning permit, business permit, occupancy permit, or community tax certificate. Furthermore these data requirements, regardless of source, all converge (in one way or another) into a payment requirement which the CTO is tasked to secure and collect.

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In the implementation of a unified enterprise data model, the thrust is to:

1. First standardize the structure, conventions, and definition of data elements that are common or shared between the different departments and collaborating agencies;
2. Second, standardize data elements to interface between the different systems (legacy or new) as well as standardize integration methods between systems;
3. Third, define a logical structure to capture the complexities of regulatory or legislative sources (revenue code , fire code, etc.) into a machine readable database format;
4. Lastly, to clearly map the lifecycle, workflows, and routes of each data element, from cradle to grave;

Secure data exchange and information sharing hinges on interconnecting all remote facilities of the LGU to the secure network of the main LGU complex via fiber-optic cable (FOC), dedicated wireless, VPN, or dedicated leased-lines by 2014 (see Figure 5 - High-level Network Design).

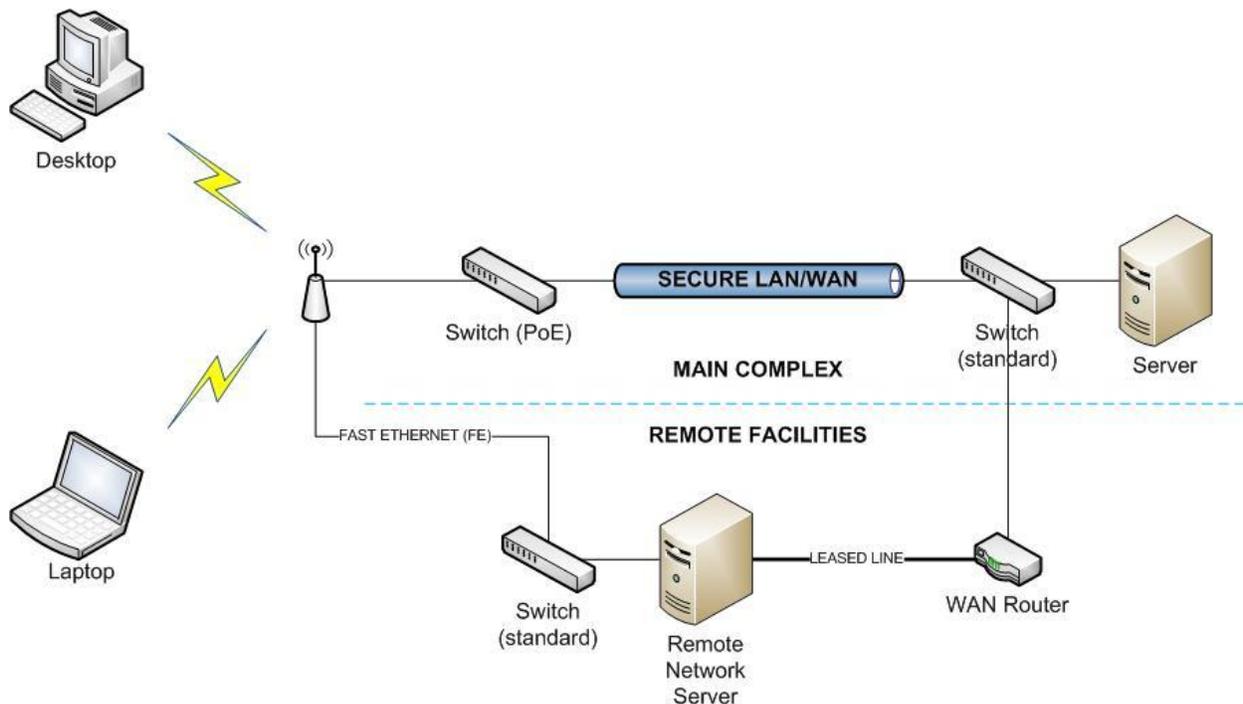


Figure 5 - High-level Network Design

The Batangas City LGU is expected to engage in increased civil work initiatives to transform the overall environment of its offices and facilities into a best-in-class and business friendly environment.

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Cognizant of these activities and to minimize massive re-work in structured network cabling, all departments will be progressively transformed in fully wireless (gigabit) networks. The use of structured cabling will be limited to the server room or data center and will also be used to connect network switches throughout its facilities.

Critical Components

Centralized ICT Management

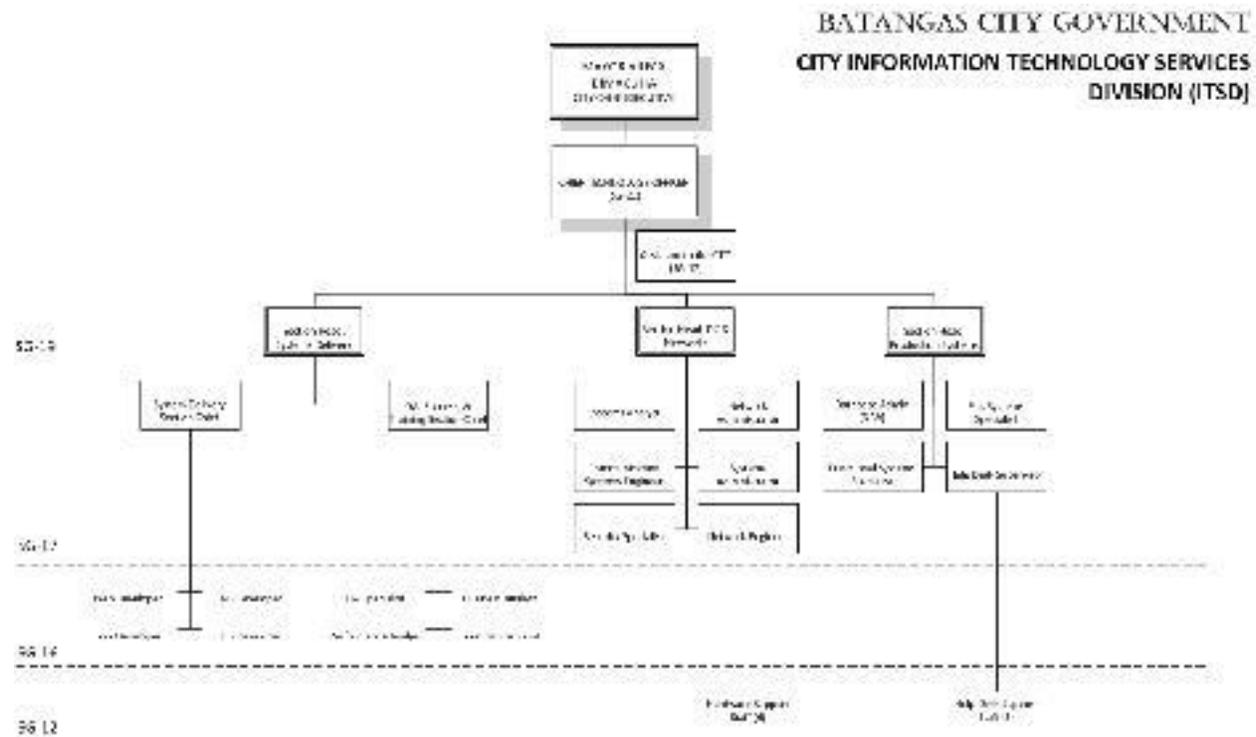


Figure 6 - Batangas City Local Government: Information Technology Services Division Organization Chart

The Information Technology Services Division (ITSD) is a shared-services unit created under the Office of the City Mayor (OCM). ITSD is chartered to provide the city government with a single and centralized group tasked to manage every aspect pertaining to the design, implementation, management, and administration of technology equipment, assets, and facilities. ITSD shall:

1. Centralize the management of technology assets, solutions and personnel;
2. Serve as a shared-services unit providing professional and competent technology resources to support the ICT needs of the City Government;

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3. Serve as the BCG trustee for technology-related standards, policies, and information security best-practices and enforcement;
4. Serve as the designated project management and solutions delivery office for all technology-related implementation projects and/or initiatives (minor or major);
5. Serve as the principal data management and data security trustee of the City Government;

The centralized ITSD will initially consist of three primary sections: the networks and data center group, production systems group, and the systems delivery group. By design, each section is intended to address the ever-growing need of the city government to optimize and speed up the delivery of its services as well as speed up the delivery of accurate information essential to decision support.

Networks and Data Center Section - The principal accountability of this section includes the management and upkeep of the physical network, the daily operations of the data center, and the provisioning of enterprise IT services (such as email, network security, connectivity, etc.) and technical (hardware) support. This section will be organized into the following competency areas: System Admin, Network Admin, Network Engineering, Communications, and Systems Analysis.

Production Systems Management Section - The principal accountability of this section is the maintenance and management of all mission-critical enterprise applications and database production systems encompassing applications and databases, including backup and disaster recovery. This section will be organized into the following competency areas: Systems/Functional Specialists, Database Administration, and Help Desk.

Systems Delivery Section - The principal accountability of this section is the management of all development activities inclusive of applications and databases, integration, enterprise services, as well as the delivery of all required software applications, web sites, or systems integration deliverables. This division will also be responsible for managing and enforcing quality assurance standards as well as serve as the trustee for all technology-related training requirements. This section will be organized into the following competency areas: Systems Delivery, Quality Assurance, and Training.

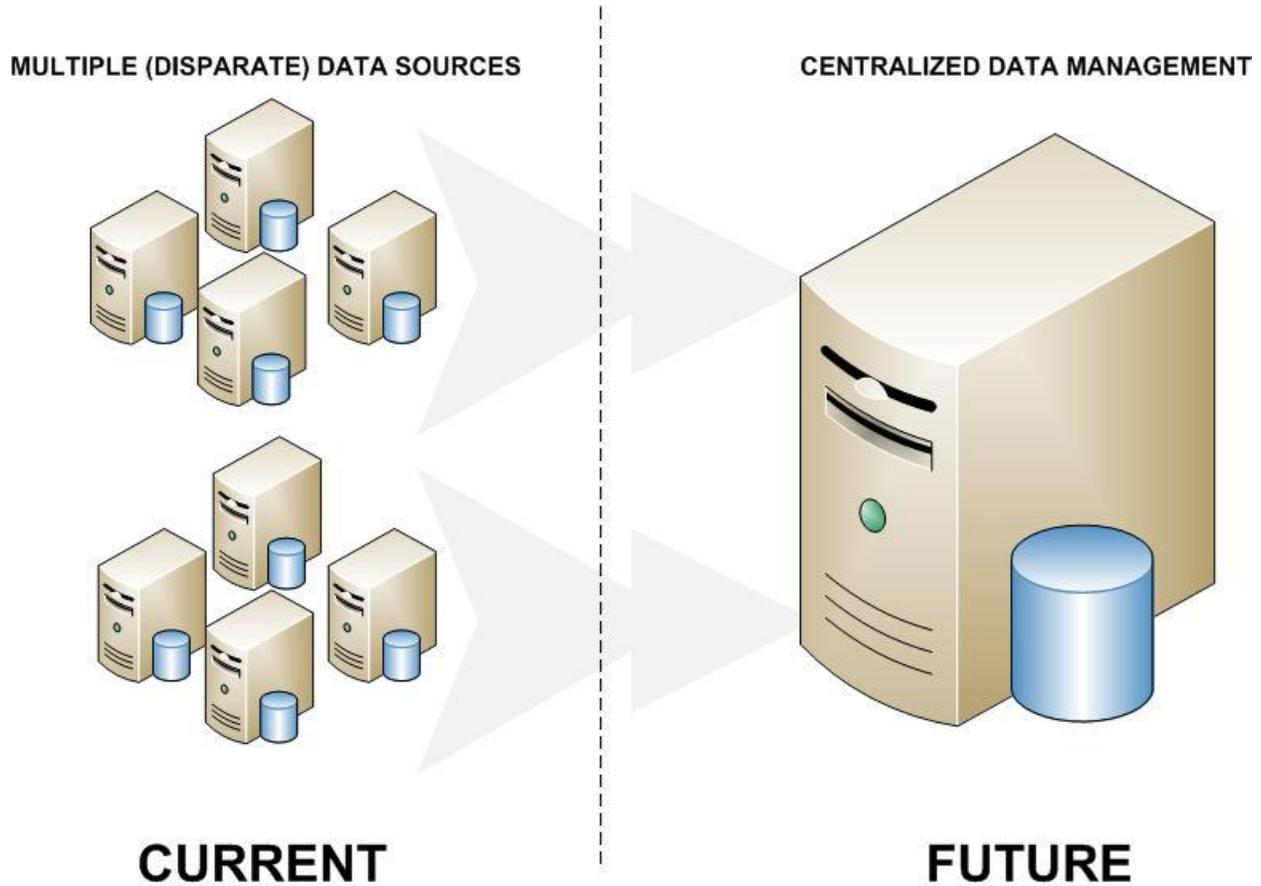
Table 4 - ITSD Table of Organization details the profiles and number of ITSD departmental resources along with the period during which they would need to be in place as part of the division.

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Table 4 - ITSD Table of Organization

TITLE/POSITION	2012 COUNT	2013 COUNT	2014 COUNT	2015 COUNT	MOS /YR	SALARY GRADE
Chief Technology Officer	1	1	1	1	13	SG-022
Section Head, DC & Networks	0	0	1	1	13	SG-019
Section Head, Production Systems	0	0	1	1	13	SG-019
Section Head, Systems Delivery	1	1	1	1	13	SG-019
QA, Process, & Training Section Chief	1	1	1	1	13	SG-017
Systems Delivery Section Chief	0	1	1	1	13	SG-017
Database Admin (DBA)	1	1	1	1	13	SG-017
Functional Systems Specialist/Analyst	0	1	1	1	13	SG-017
Help Desk Supervisor	0	0	1	1	13	SG-017
Financial Systems Specialist	0	0	1	1	13	SG-017
Network Administrator	0	1	1	1	13	SG-017
Systems Administrator	0	0	1	1	13	SG-017
Security Specialist	0	0	1	1	13	SG-017
Network Engineer	0	0	1	1	13	SG-017
Systems Analyst	0	0	1	1	13	SG-017
Communication Systems Engineer	0	0	1	1	13	SG-017
QA Specialist	0	0	1	1	13	SG-016
Training Specialist	0	0	1	1	13	SG-016
Business Analyst	1	1	1	1	13	SG-016
Performance Analyst	0	0	1	1	13	SG-016
Web Developer	0	1	1	1	13	SG-016
VB Developer	0	1	1	1	13	SG-016
DB Developer	0	1	1	1	13	SG-016
Java Developer	0	1	1	1	13	SG-016
Help Desk Support Staff	0	2	3	3	13	SG-012
Hardware Support Staff	1	2	3	6	13	SG-012
Assistant to the CTO	0	1	1	1	13	SG-012
TOTALS	6	17	31	34		

Centralized Data Management



For the city government to maximize realized benefit from technology-related data management investments, all database services will progressively be migrated into a centralized facility following the completion of the required network infrastructure. Centralized data management, a critical component of this IS plan, is essential to ensuring that departmental applications follow a common data sharing and exchange framework.

The progressive migration will involve the implementation of a distributed and load balanced enterprise database server farm. This will allow more data intensive users to leverage on available system resources, which when not in use will also be made available to other users depending on requirement. Upgrading the system resources of a distributed and load balanced server farm will immediately benefit all applications connected to this centralized database system.

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Enterprise Systems Security Management

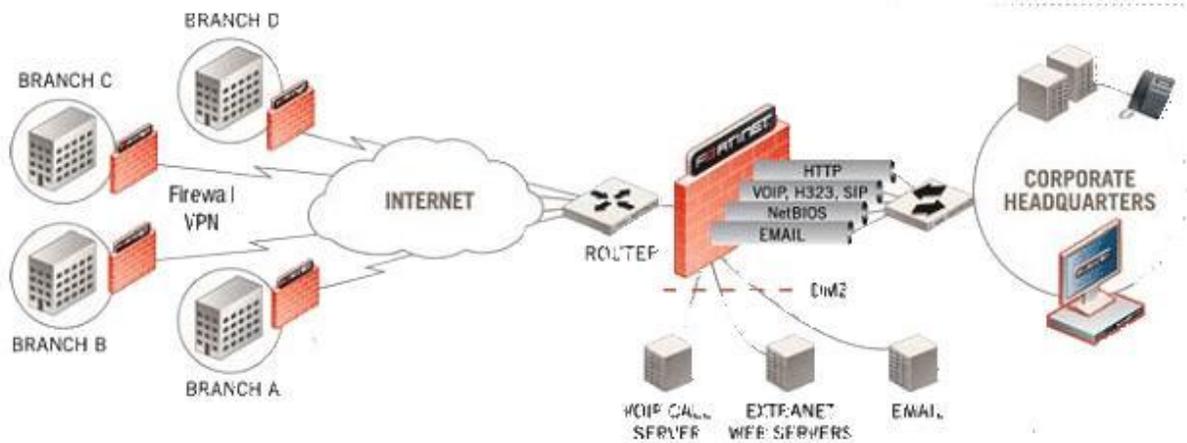


Figure 7 - Scope of Enterprise Security Management

Enterprise systems security management will involve the definition, implementation, enforcement, and monitoring of security protocols from encryption, user access permissions, to machine and network-based resource restrictions. This will be supported by technology enabled equipment such as hardware-based unified threat management systems or UTM's.

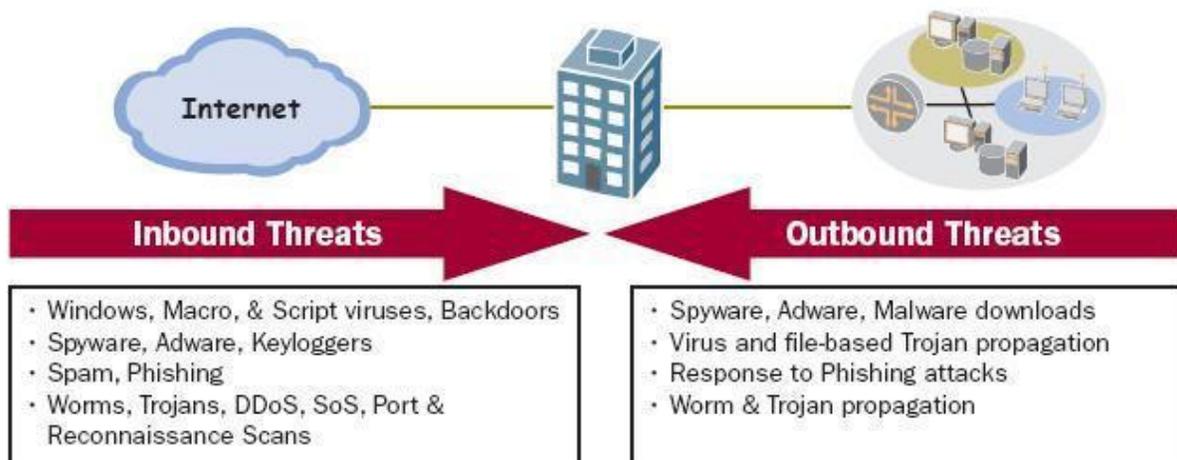


Figure 8 - Inbound and Outbound Threats

Unified threat management systems protect every system connected to the city government's network from internal (outbound) and external (inbound) threats (refer to *Figure 9*) such as those indicated in *Figure 8*. The city government, in lieu of hardening its enterprise security environment, calls for the replacement of all aging ICT equipment.

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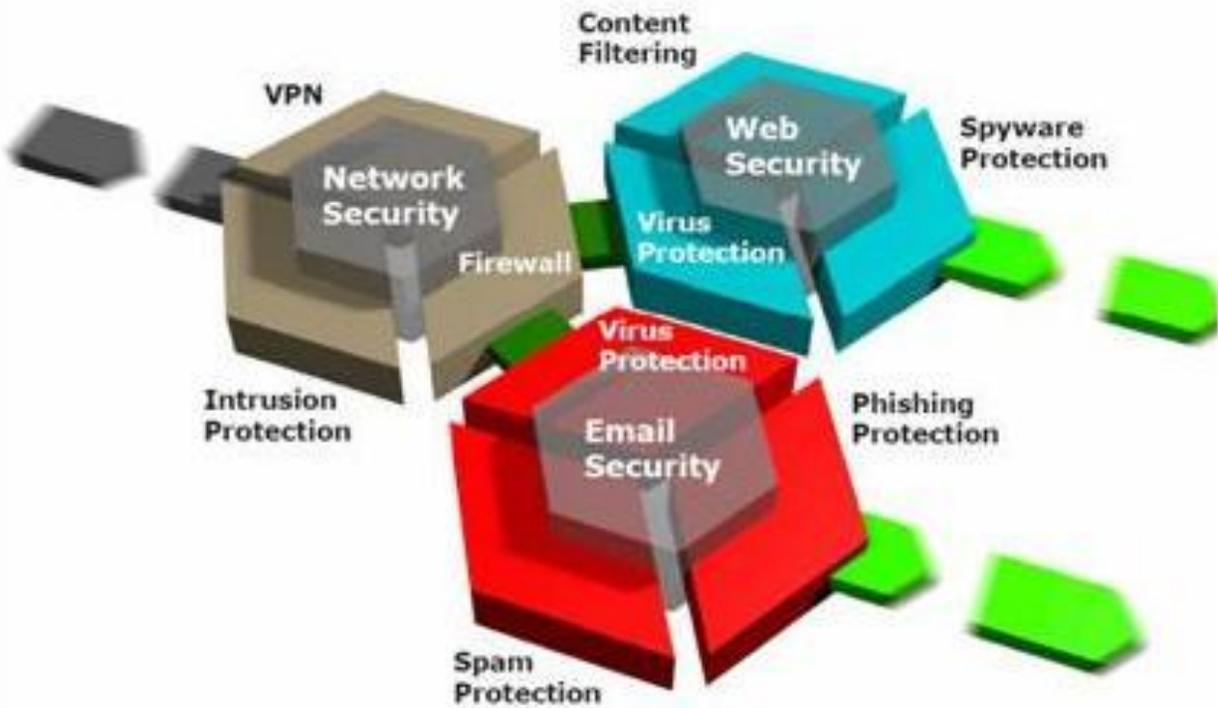


Figure 9 - Value of Unified Threat Management Systems to the City Government

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SECTION 4 - RESOURCE REQUIREMENTS

ICT Resource Requirements

ICT Equipment Deployment and Upgrade Plan

ICT EQUIPMENT	2013	2014	2015	TOTAL UNITS
PC-WORKSTATIONS	30	300	100	430
MOBILE DESKTOPS/LAPTOPS	18	20	30	68
TABLET COMPUTERS	0	40	100	140
IP PBX SYSTEM	1	0	0	1
IP PHONE UNITS	100	150	150	400
IP VIDEO TELEPHONY UNITS	18	40	20	78
NETWORK SWITCHES	5	15	15	35
WIRELESS ACCESS POINTS	10	20	30	60
ROUTERS	8	6	6	20
UTM APPLIANCES	1	0	0	1
NETWORK SERVERS	1	1	1	3
DATABASE SERVERS	1	3	4	8
APPLICATION SERVERS	1	3	5	9
EMAIL SERVERS	1	2	0	3
WEB SERVERS	0	2	2	4
VIDEO DIVX SERVERS	0	3	0	3
GENERAL PURPOSE SERVERS	0	2	2	4
AUTOMATED BACKUP	0	1	0	1
NETWORK LASER PRINTERS	3	20	20	43
DESKJET PRINTERS	0	20	20	40
LARGE-FORMAT PLOTTERS	0	0	0	0
NETWORK PHOTOCOPIERS	0	4	12	16
PRINT SERVERS	0	2	20	22
20 MPX IP CAMERAS	10	20	20	50
5KVA UNINTERRUPTIBLE POWER SUPPLY	1	2	3	6
DESKTOP UNINTERRUPTIBLE POWER SUPPLY	30	300	100	430
BIOMETRIC SECURITY SYSTEM	0	50	0	50
QUEING SYSTEM DISPLAY UNITS	2	3	3	8
QUEING SYSTEM STATIONS	10	60	60	130

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ICT EQUIPMENT	2013	2014	2015	TOTAL UNITS
QUEING SYSTEM PRINTERS	3	12	3	18

Consolidation of Service Subscriptions

PARTICULARS		2013	2014	2015
Consolidation of Internet Services Provisioning		✓		
Phase 1: High-Speed Facility Interconnectivity		✓		
Phase 2: High-Speed Facility Interconnectivity			✓	
Phase 3: High-Speed Facility Interconnectivity				✓
Consolidation of Telecommunication Service Provisioning		✓		
Phase 1: IP Telephony Implementation		✓		
Phase 2: IP Telephony Implementation			✓	
Phase 3: IP Telephony Implementation				✓
Mission-Critical Application Hosting				✓
Web-site and Email Hosting		✓		
Business Continuity and Disaster Recovery				✓
NETWORK INTERCONNECTIVITY AND COMMUNICATIONS CONVERGENCE				
LGU	Consolidation of all data and voice subscriptions into a single managed enterprise account;	✓		
CITY HALL COMPLEX	Inter-connect all departments into a secure high-speed LAN network	✓		
CITY PUBLIC MARKET	Phase 1: Inter-connect all remote department facilities into a secure high-speed WAN network.	✓		
CITY ENGINEERING OFFICE		✓		
CITY VETERINARIAN (OCVAS)		✓		
CITY DISASTER RISK REDUCTION		✓		
CITY SOCIAL WELFARE (CSWD)		✓		
CITY WAREHOUSE (GSO)		✓		
CITY COLISEUM	Phase 2: Inter-connect all remote department facilities into a secure high-speed WAN network.		✓	
CITY CONVENTION CENTER			✓	
TEACHER'S CONF. CENTER			✓	
COLEGIO NG LUNGSOD NG BATANGAS			✓	
CITY BFP OFFICE			✓	
CITY PNP OFFICE			✓	
CITY JAIL			✓	
CITY SLAUGHTERHOUSE			✓	

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Software Acquisition Plan for Standard and Departmental Use

DEPARTMENT-UNIT	SOLUTION	2013	2014	2015
DEPARTMENTAL SYSTEMS				
CMO-BPLD	Integrated Business Requirements Management and Permit and Licensing Issuance System	✓		
CMO-BPLD	Centralized Calendaring and Compliance Monitoring	✓		
CMO-PESO	Occupation and Skills Information Management System	✓		
CMO-BPLD/TDRO	Special Permits Calendaring and Interface	✓		
	GIS enablement		✓	
CMO-TDRO	Traffic Management and Ticketing			✓
CMO-PERSONNEL	Human Resource Management System		✓	
CTO	Integrated City Treasury Operations Management	✓		
	GIS-Enablement	✓		
CTO-RPTS	Real Property Tax Management System		✓	
CAO	Parcel Information Tracking and Management System		✓	
	GIS-Enablement	✓		
CPDO	GIS-Enablement	✓		
CPDO-ZONING	City Zoning Information Management System		✓	
CHO	City Health Office Certificate Management and Issuance System	✓		
	GIS-Enablement		✓	
CEO	City Engineering Compliance Monitoring and Management System		✓	
	GIS-Enablement		✓	
CITY BUDGET OFFICE	Budget and Encumbrance Management System			✓
CITY MARKET	Market Administration System			✓

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DEPARTMENT-UNIT	SOLUTION	2013	2014	2015
CITY ACCOUNTING	Accounting System and Financial Reporting (eNGAS Compliant)		✓	
CMO-GSD	Procurement and Inventory Management System		✓	
	Asset Management and Tracking System		✓	
	GIS-Enablement		✓	
	Supply Logistics and Distribution System		✓	
	Maintenance Management System		✓	
UNIVERSAL SYSTEMS				
Website	City Government Content Management System and Website	✓		
Email Management	City Government Email System	✓		
Active Directory	Centralized Network and Security Management	✓		
Communication	IP Telephony and PBX system	✓		
DATA EXCHANGE AND INTEGRATION SYSTEM				
	DTI-PBR Integration	✓		
	BFP Integration		✓	
	SEC Integration			
	CDA Integration		✓	
	POEA Integration			
	DoLE Integration (NMRS)		✓	
	BIR Integration			
	SSS Integration			
	PhilHealth Integration			
	DOH Integration			✓
	COA Integration			✓

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Technical Training Needs and Capability Development Requirements

DEPARTMENT-UNIT	SYSTEM	2013	2014	2015
DEPARTMENTAL SYSTEMS TRAINING				
CMO-BPLD	Integrated Business Requirements Management and Permit and Licensing Issuance System	Departments involved in BOSS-BPLS processes and System Admins		
CMO-BPLD	Centralized Calendaring and Compliance Monitoring	Departments involved in JIT activities and System Admins		
CMO-PESO	Occupation and Skills Information Management System		PESO End-Users and System Admins	
CMO-BPLD/TRDO	Special Permits Calendaring and Interface	BPLD and TRDO End-Users and System Admins		
	Traffic Management and Ticketing		TRDO and CTO End-Users and System Admins	
CMO-PERSONNEL	Human Resource Management System		Personnel End-Users and System Admins	
CTO	Integrated City Treasury Operations Management	CTO End-Users and System Admins		
CTO-RPTS	Real Property Tax Management System	CTO End-Users and System Admins		
CAO	Parcel Information Tracking and Management System		CAO/CPDO/CTO End-Users and System Admins	
CPDO-ZONING	City Zoning Information Management System		CPDO/CTO End-Users and System Admins	
CHO	City Health Office	CHO/CTO		

Batangas City Government
INFORMATION SYSTEMS STRATEGIC PLAN
 For Year 2013 – 2015

DEPARTMENT-UNIT	SYSTEM	2013	2014	2015
	Certificate Management and Issuance System	End-Users and System Admins		
CEO	City Engineering Compliance Monitoring and Management System		CEO/CPDO/CTO End-Users and System Admins	
CITY BUDGET OFFICE	Budget and Encumbrance Management System			Budget End-Users and System Admins
CITY MARKET	Market Administration System			MARKET End-Users and System Admins
CITY ACCOUNTING	Accounting System and Financial Reporting (eNGAS Compliant)		ACCTG End-Users and System Admins	
CMO-GSD	Procurement and Inventory Management System		GSD End-Users and System Admins	
	Asset Management and Tracking System			
	Supply Logistics and Distribution System			
	Maintenance Management System			
UNIVERSAL SYSTEMS				
Website	City Government Content Management System and Website	Departmental Contributors and Editors		
Email Management	City Government Email System	All Email Users	All Email Users	All Email Users
Active Directory	Centralized Network and Security Management	IT Admins		
Communication	IP Telephony and PBX system	IT Admins		
DATA EXCHANGE AND INTEGRATION SYSTEM				
	DTI-PBR Integration		IT Admins	
	BFP Integration			
	SEC Integration			

Batangas City Government
INFORMATION SYSTEMS STRATEGIC PLAN
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DEPARTMENT-UNIT	SYSTEM	2013	2014	2015
	CDA Integration		IT Admins	
	POEA Integration			
	DoLE Integration (NMRS)		IT Admins	
	BIR Integration			
	SSS Integration			
	PhilHealth Integration			
	DOH Integration			IT Admins
	COA Integration			IT Admins

SECTION 5 – DEVELOPMENT AND INVESTMENT PROGRAM

IT Strategic Initiatives Implementation Schedule

Year 1 – 2013

1. Phase 1 Implementation of a high speed backbone connecting City Hall with all Remote City Government Offices;
2. Implementation of IP Telephony Systems enhancing a single number contact for the city government enabled by unified messaging;
3. Implementation of the Enhanced Business Differentiator Management System to software-enable the Business On-Stop Shop processes;
4. Implementation of an Enterprise Case Management System to centralize inspection management, scheduling and dispatch, and exceptions management;
5. Implementation of an Enhanced and Integrated City Treasury Cashiering Management System;
6. Integration with the Philippine Business Registry;
7. Deployment of New City Government Website
8. Progressive upgrade and replacement of City Government PC's and workstations;
9. Software License Compliance Program
10. ITSD Capacity and Organizational Development

Year 2 – 2014

1. Implementation of GIS management systems to enable the mapping capabilities of the CPDO, CTO, BPLO, CHO, CAO, CENRO, OCVAS and CEO departments;
2. Phase 2 Implementation of a high speed backbone connecting City Hall with CLB and CCTV systems in predetermined key locations;
3. Implementation of an Enhanced City Assessor System and Real Property Tax Management System;
4. Implementation of an Enterprise Resource Planning and Financials Management System to enable City Accounting, Inventory Management, and Procurement;
5. Software-enablement of CEO with AutoCAD Design and Engineering Software capabilities;

Batangas City Government
INFORMATION SYSTEMS STRATEGIC PLAN
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Information Systems High-Level Implementation Schedule

DEPARTMENT-UNIT	SOLUTION	2013	2014	2015
DEPARTMENTAL SYSTEMS				
INTEGRATED BOSS	Integrated Business Requirements Management and Permit and Licensing Issuance System	✓		
	Centralized Calendaring and Compliance Monitoring	✓		
	GIS-Enablement		✓	
CMO-BPLO/TDRO	Special Permits Calendaring and Interface	✓		
CMO-PESO	Occupation and Skills Information Management System	✓		
CMO-TDRO	Traffic Management and Ticketing			✓
CMO-PERSONNEL	Human Resource Management System		✓	
CTO	Integrated City Treasury Operations Management	✓		
CTO	GIS-Enablement	✓		
CTO-RPTS	Real Property Tax Management System		✓	
CAO	Parcel Information Tracking and Management System		✓	
CAO	GIS-Enablement	✓		
CPDO	GIS-Enablement	✓		
CPDO-ZONING	City Zoning Information Management System		✓	
CHO	City Health Office Certificate Management and Issuance System	✓		
CHO	GIS-Enablement		✓	
CEO	City Engineering Compliance Monitoring and Management System		✓	
CEO	GIS-Enablement		✓	
CITY BUDGET OFFICE	Budget and Encumbrance Management System			✓
CITY MARKET	Market Administration System			✓
CITY ACCOUNTING	Accounting System and Financial Reporting (eNGAS)		✓	

Batangas City Government
INFORMATION SYSTEMS STRATEGIC PLAN
 For Year 2013 – 2015

DEPARTMENT-UNIT	SOLUTION	2013	2014	2015
	Compliant)			
CMO-GSD	Procurement and Inventory Management System		✓	
	Asset Management and Tracking System		✓	
	Supply Logistics and Distribution System		✓	
	Maintenance Management System		✓	
UNIVERSAL SYSTEMS				
Website	City Government Content Management System and Website	✓		
Email Management	City Government Email System	✓		
Active Directory	Centralized Network and Security Management	✓		
Communication	IP Telephony and PBX system	✓		
DATA EXCHANGE AND INTEGRATION SYSTEM				
	DTI-PBR Integration	✓		
	BFP Integration		✓	
	SEC Integration			
	CDA Integration		✓	
	POEA Integration			
	DoLE Integration (NMRS)		✓	
	BIR Integration			
	SSS Integration			
	PhilHealth Integration			
	DOH Integration			✓
	COA Integration			✓